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| 09/943,308      | 08/31/2001  | Allen John Walenty   | GP-300882           | 8716             |

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CHRISTOPHER DEVRIES  
General Motors Corporation  
Legal Staff  
P.O. Box 300 Mail Code 482-C23-B21  
Detroit, MI 48265-3000

EXAMINER

TRAN, DALENA

ART UNIT

PAPER NUMBER

3661

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/943,308

Applicant(s)

WALENTY ET AL.

Examiner

Dalena Tran

Art Unit

3661

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 31 August 2001.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-9 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.

4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_.

**DETAILED ACTION**

**Notice to Applicant(s)**

1. This application has been examined. Claims 1-9 are pending.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, are rejected under 35 U.S.C.103(a) as being unpatentable over Takagi et al. (4,708,406) in view of Clar et al.(6,135,578).

As per claim 1, Takagi et al. disclose a method of operation for a vehicle braking system including a driver activated brake pedal, a brake pressure modulator, and an anti-lock brake control that activates the brake pressure modulator to modulate vehicle braking upon detection of an insipient wheel lock condition, the method comprising the steps: periodically measuring vehicle deceleration and a brake pedal position during activation of the braking system when insipient wheel lock condition is not detected (see column 3, lines 20-69), and identifying conditions of degraded braking effectiveness based on the periodically measuring vehicle deceleration and brake pedal position (see columns 4-6, lines 60-56). Takagi et al. do not disclose adaptively adjusting a brake pressure control parameter. However, Clar et al. disclose adaptively adjusting a brake pressure control parameter of anti-lock brake control when a condition of degraded braking effectiveness is identified so as to compensate for the identified condition (see columns 2-3, lines 13-43; and columns 3-5, lines 53-57). It would have been

obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Takagi et al. by combining adaptively adjusting a brake pressure control parameter of anti-lock brake control when a condition of degraded braking effectiveness is identified so as to compensate for the identified condition for carrying out an automatic braking operation makes it possible to brake the vehicle as rapidly as possible in a critical driving situation.

As per claim 2, Takagi et al. do not disclose increase rate of brake pressure application. However, Clar et al. disclose wherein the anti-lock brake control releases and then re-applies brake pressure at a determine apply rate upon detection of an insipient wheel lock condition, and the step of adaptively adjusting a brake control parameter includes adjusting the determined apply rate in a manner to provide an increased rate of brake pressure application (see columns 2-3, lines 13-43; and columns 3-5, lines 53-57). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Takagi et al. by combining wherein the anti-lock brake control releases and then re-applies brake pressure at a determine apply rate upon detection of an insipient wheel lock condition, and the step of adaptively adjusting a brake control parameter includes adjusting the determined apply rate in a manner to provide an increased rate of brake pressure application to improve the reliability of vehicle braking system.

4. Claims 4-5, are rejected under 35 U.S.C.103(a) as being unpatentable over Takagi et al. (4,708,406), and Clar et al.(6,135,578) as applied to claim 1 above, and further in view of Sol (5,043,896).

As per claim 4, Clar et al. disclose estimating a road surface friction coefficient based on the periodically measured deceleration and brake pedal position (see column 6, lines 17-43), and

determining apply rate based on the estimated road coefficient of friction when conditions of degraded braking effectiveness are not identified (see columns 6-7, lines 43-26). Takagi et al., and Clar et al. do not disclose determining apply rate based on the estimated road coefficient of friction when conditions of degraded braking effectiveness are identified. However, Sol discloses determining apply rate based on the estimated road coefficient of friction when conditions of degraded braking effectiveness are identified (see columns 2-3, lines 59-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Takagi et al. by combining determining apply rate based on the estimated road coefficient of friction when conditions of degraded braking effectiveness are identified for appropriately adjusting braking control based on various driving surface conditions.

As per claim 5, Takagi et al., and Clar et al. do not disclose compensating the estimated road surface coefficient of friction. However, Sol discloses compensating the estimated road surface coefficient of friction for error due to the identified condition of degraded braking effectiveness (see columns 1-2, lines 64-58), and determining the apply rate based on the compensate estimate of road surface coefficient of friction and the measure of braking effectiveness degradation (see columns 4-5, lines 29-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Takagi et al., and Clar et al. by combining compensating the estimated road surface coefficient of friction for error due to the identified condition of degraded braking effectiveness, and determining the apply rate based on the compensate estimate of road surface coefficient of friction and the measure of braking effectiveness degradation to provide pressure regulating to monitor the operation of a vehicle braking system.

5. Claims 3, and 7-8, are rejected under 35 U.S.C.103(a) as being unpatentable over Takagi et al. (4,708,406), Clar et al.(6,135,578), and Sol (5,043,896) as applied to claims 1, and 4 above, and further in view of Klein et al. (5,681,992).

As per claim 3, Takagi et al., Clar et al., and Sol do not disclose brake wear. However, Klein et al. disclose the identified condition of degraded braking effectiveness is brake wear, and the determined apply rate is increased by a predefined factor (see columns 2-3, lines 43-8; and columns 4-5, lines 6-4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Takagi et al., and Clar et al. by combining the identified condition of degraded braking effectiveness is brake wear, and the determined apply rate is increased by a predefined factor to determine the response pressure of a brake in a braking system.

As per claim 7, Takagi et al. disclose the identified condition of degraded braking effectiveness is fluid leakage, and the measure of braking effectiveness degradation is determined according to an estimated rate of the fluid leakage (see columns 5-6, lines 48-56).

As per claim 8, Takagi et al., Clar et al., and Sol do not disclose a mis-adjustment of adjustable brake. However, Klein et al. disclose the braking system includes an adjustable brake, the identified condition of degraded braking effectiveness is mis-adjustment of adjustable brake, and the measure of braking effectiveness degradation is determined according to a difference in wheel speeds attributable to such mis-adjustment (see columns 5-7, lines 5-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Takagi et al., and Clar et al. by combining the braking system includes an adjustable brake, the identified condition of degraded braking effectiveness is mis-adjustment of adjustable

brake, and the measure of braking effectiveness degradation is determined according to a difference in wheel speeds attributable to such mis-adjustment for checking various components of the braking system and warning operator with a failed or malfunctioning of braking system.

6. Claim 6 is rejected under 35 U.S.C.103(a) as being unpatentable over Takagi et al. (4,708,406), Clar et al.(6,135,578), and Sol (5,043,896) as applied to claim 4 above, and further in view of Reinecke (4,685,745).

As per claim 6, Takagi et al., Clar et al., and Sol do not disclose brake fading, and brake temperature. However, Reinecke disclose the identified condition of degraded braking effectiveness is brake fading, and the measure of braking effectiveness degradation is determined according to an amount by which an estimate of brake temperature exceeds a nominal brake temperature (see the abstract; columns 2-3, lines 63-66; and columns 4-5, lines 43-58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Takagi et al., and Clar et al. by combining the identified condition of degraded braking effectiveness is brake fading, and the measure of braking effectiveness degradation is determined according to an amount by which an estimate of brake temperature exceeds a nominal brake temperature for correction of braking value at an equalization of braking value temperature of the wheel brake.

7. Claim 9 is rejected under 35 U.S.C.103(a) as being unpatentable over Takagi et al. (4,708,406), Clar et al.(6,135,578), and Sol (5,043,896) as applied to claim 4 above, and further in view of Lator et al.

As per claim 9, Takagi et al., Clar et al., and Sol do not disclose vehicle weight. However, Lator et al. disclose the identified condition of degraded braking effectiveness is

excessive vehicle weight, and the measure of braking effectiveness degradation is determined according to an amount by which an estimate of vehicle weight exceeds a reference weight (see the abstract; columns 2-3, lines 29-65; columns 4-5, lines 21-13; and columns 7-8, lines 36-44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Takagi et al., and Clar et al. by combining the identified condition of degraded braking effectiveness is excessive vehicle weight, and the measure of braking effectiveness degradation is determined according to an amount by which an estimate of vehicle weight exceeds a reference weight for accurately monitor the operation of the vehicle braking system.

### **Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

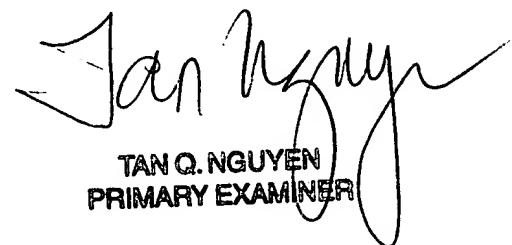
- . Holzmann et al. (5,039,175)
- . Caron et al. (5,299,452)
- . Skorupski et al. (5,467,645)

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalena Tran whose telephone number is 703-308-8223. The examiner can normally be reached on M-F (7:30 AM-5:30PM), off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Cuchlinski can be reached on 703-308-3873. The fax phone numbers for

the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.



A handwritten signature in black ink, appearing to read "Tan Nguyen".

TAN Q. NGUYEN  
PRIMARY EXAMINER

/dt  
December 11, 2002